IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

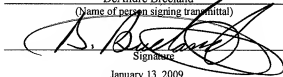|		
Appellants	:	Fumihiko Nishio, et al.
Appl. No.	:	09/700,610
Filed	:	February 20, 2001
For	:	TRANSMITTING APPARATUS, RECEIVING APPARATUS, TRANSMITTING AND RECEIVING APPARATUS, TRANSMITTING METHOD, RECEIVING METHOD AND TRANSMITTING AND RECEIVING METHOD
Art Unit	:	2623
Examiner	:	Sheleheda, James R.
Confirmation No.	:	8152

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REPLY BRIEF UNDER 37 C.F.R. §41.41

Reply Briefs-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Examiner's Answer dated November 14, 2008, having a two-month

period for reply set to expire on January 14, 2009, Appellants submit herewith a Reply Brief.

This Reply Brief includes a subsection of "D. Responses to Examiner's Answer" in the

Argument section.

<center>i   REAL PARTY IN INTEREST</center>

The real party in interest is Sony Corporation, a Japanese Corporation with offices at 7-

35 Kitashinagawa 6-chome, Shinagawa-ku, Tokyo, 141-0001 Japan. The assignment of this

application is recorded in the United States Patent and Trademark office on May 8, 2001, at Reel

011540 and Frame 0846.

<center>ii   RELATED APPEALS AND INTERFERENCES</center>

Upon information and belief, the undersigned attorney does not believe that there is any

appeal or interference that will directly affect, be directly affected by or have a bearing on the

Board's decision in the pending appeal.

<center>iii   STATUS OF THE CLAIMS</center>

The Application is a 371 of PCT/JP00/01560 filed with claims 1-24 on March 15, 2000,

and assigned Application Serial No. 09/700,610. This application claims the benefit of Japanese

Patent Application No. JP/075870, filed on March 19, 1999.

The Examiner issued an Office Action on February 25, 2005, rejecting claims 1-24 under

35 U.S.C. §102(b) as allegedly anticipated by WO99/01984 to Maissel, et al. (hereinafter, merely

"Maissel").

Appellants filed a reply on May 25, 2005, amending claims 1-3, 6, 7, 10-15, and 17-20.

The Examiner issued an Office Action on June 23, 2005, rejecting claims 1-24 under 35 U.S.C. §103(a) as allegedly unpatentable over Maissel in view of U.S. Patent No. 5,872,588 to Aras et al. (hereinafter, merely "Aras").

Appellants filed a reply on August 23, 2005, amending claims 1-3, 6, 7, 10-15, and 17-20 and filed Request for Continued Examination on September 22, 2005.

The Examiner issued an Office Action on November 2, 2005, rejecting claims 1-24 under 35 U.S.C. §102(b) as allegedly anticipated by Maissel.

Appellants filed a reply on January 27, 2006, amending claims 1-3, 6, 7, 10-15, and 17-20.

The Examiner issued a Final Office Action on March 10, 2006, rejecting claims 1-24 under 35 U.S.C. §102(b) as allegedly anticipated by Maissel.

Appellants filed a reply on April 27, 2006, amending claims 1-3, 6, 7, 10-15, and 17-20 and filed Request for Continued Examination on June 6, 2006.

The Examiner issued an Office Action on September 7, 2006, rejecting claims 1-24 under 35 U.S.C. §103(a) as allegedly unpatentable over Maissel in view of U.S. Patent No. 5,559,549 to Hendricks et al. (hereinafter, merely "Hendricks").

Appellants filed a reply on November 28, 2006, making an argument without amendment to the claims.

The Examiner issued a Final Office Action on January 24, 2007, rejecting claims 1-24 under 35 U.S.C. §103(a) as allegedly unpatentable over Maissel in view of Hendricks.

Appellants filed a reply on March 23, 2007, amending claims 1-3, 6, 7, 10-15, and 17-20 and filed Request for Continued Examination on April 10, 2007.

The Examiner issued an Office Action on June 4, 2007, rejecting claims 1-24 under 35

U.S.C. §103(a) as allegedly unpatentable over Maissel in view of Hendricks.

Appellants filed a reply on September 4, 2007, amending claims 1-3, 6, 7, 10-15, and 17-

20.

The Examiner issued a Final Office Action on October 1, 2007, rejecting claims 1-24

under 35 U.S.C. §103(a) as allegedly unpatentable over Maissel in view of Hendricks and in

view of U.S. Patent No. 5,614,940 to Cobbley et al. (hereinafter, merely "Cobbley").

Appellants filed a reply on October 31, 2007, making an argument without amendment to

the claims.

The Examiner issued an Advisory Action on November 8, 2007, maintaining the

rejections in the Final Office Action dated October 1, 2007.

A Notice of Appeal and Pre-Appeal Brief Request for Review were filed by Appellants

on January 2, 2008.

A Notice of Panel Decision for Pre-Appeal Brief Review was issued on July 22, 2008.

This Appeal Brief is being filed pursuant to the Notice of Panel Decision for Pre-Appeal

Brief Review.

Accordingly, the status of the claims may be summarized as follows:

Claims Allowed:	None.
Claims Rejected:	1-24.
Claims Appealed:	1-24.
Claims Canceled:	none

The rejected claims 1-24 are set forth in the Appendix attached hereto.

Appellants appeal the Final Rejection of claims 1-24, which constitute all of the currently

pending claims in this application.

iv   STATUS OF THE AMENDMENTS

Appellants believe that all the submitted Amendments to the claims have been entered.

v   SUMMARY OF THE CLAIMED SUBJECT MATTER

A.   Brief Summary of the Invention

A meta information schema that defines a structure of meta information is transmitted, updated, and stored for efficiently transmitting meta information. When meta information such as Electronic Program Guide (EPG) is added to contents data, it is necessary to add and transmit meta information effectively since an increase of transmission data is created due to addition of meta information. (see page 2, lines 19-15of the Specification).

B.   Detailed Summary of Each Independent Claim

Independent claims 1-3, 6, 7, 10-15, and 17-20 are summarized below. Citations to Figures and Specification locations are provided. However, such citations are provided merely as examples and are not intended to limit the interpretation of the claims or to evidence or create any estoppel.

Independent Claim 1

Independent claim 1 is directed to a transmitting apparatus for providing digital content (Figure 2 and Figure 19). A meta information storing means stores meta information about

content data that is transmitted (203 in Figure 2, page 25, lines 10-19, Figure 6, page 31, line 23-

page 32, line13). An identifier data is associated with a particular portion of the content data that

is adapted to distinguish a segment of content data (403 and 404 in Figure 4, page 30, lines 21-

27).

A meta information schema storing means stores a meta information schema that defines

the data structure of meta information about the content data according to the content data that is

transmitted (202 in Figure 2, page 24, lines 10-23 and Figure 5, page 31, lines 7-23). The meta

information schema is periodically updated to effectively add, delete, and transmit the meta

information and to improve a searching efficiency of the meta information (page 48, line 23-page

49, line 13).

An inference rule storing means stores an inference rule defined by the data structure of

meta information about the content data that is transmitted (201 in Figure 2, page 25, lines 20-

27). A transmitting means transmits the meta information, the meta information schema, the

inference rule, and the content data through a transmission path when the inference rule and the

meta information schema are not stored in a receiving apparatus and transmits only the meta

information and the content data when the inference rule and the meta information schema are

stored in the receiving apparatus (208 in Figure 2, page 26, line 23-page 27, line 10 and page 30,

lines 1-13). The meta information schema includes the identifier data and attribute names of the

content (Figure 5, page 31, lines 7-23). The meta information includes the identifier data, the

attribute names and description data corresponding to each attribute name of the content (Figure

6, page 31, line 23-page 32, line 13).

Use history information of meta information is periodically received from the receiving

apparatus (page 46, lines 1-5). Attributes, whose applied frequencies are low as indicated by the

use history information are deleted from the meta information schema (page 46, lines 15-20).

The inference rule defines a rule for which an attribute value is newly obtained from a relation

between segments (page 32, lines 21-25).

Independent Claim 2

Independent claim 2 is directed to a transmitting apparatus for providing digital content

(Figure 2 and Figure 19). A meta information storing means stores meta information about

content data that is transmitted (203 in Figure 2, page 25, lines 10-19, Figure 6, page 31, line 23-

page 32, line13). An identifier data storing means stores identifier data associated with a

particular portion of the content data that is adapted to distinguish a segment of content data (203

in Figure 2, page 25, lines 10-19, Figure 6, page 31, line 23-page 32, line13).

A meta information schema storing means stores a meta information schema that defines

the data structure of meta information about the content data according to the content data that is

transmitted (202 in Figure 2, page 24, lines 10-23 and Figure 5, page 31, lines 7-23). A

transmitting means transmits the meta information, the meta information schema, and the content

data through a transmission path when an inference rule and the meta information schema are not

stored in a receiving apparatus, and transmits only the meta information and the content data

when the inference rule and the meta information schema are stored in the receiving apparatus

(208 in Figure 2, page 26, line 23-page 27, line 10 and page 30, lines 1-13).

A communication controlling means communicates with a receiving apparatus (210 in

Figure 2, page 27, lines 10-15). A changing means changes the structure of the meta information

schema that has been stored in the meta information schema storing means and the meta

information that has been stored in the meta information storing means corresponding to content

data that has been received through the communication controlling means (212 in Figure 19, page 42, lines 20-25). The meta information schema includes the identifier data and attribute names of the content (Figure 5, page 31, lines 7-23).

The meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content (Figure 6, page 31, line 23-page 32, line 13). The inference rule defines a rule for which an attribute value is newly obtained from a relation between segments (page 32, lines 21-25). The communication controlling means periodically receives use history information of meta information from the receiving apparatus (page 46, lines 1-5). The changing means deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information (page 46, lines 15-20).

Independent Claim 3

Independent claim 3 is directed to a transmitting apparatus for providing digital content (Figure 2 and Figure 19). A meta information storing means stores meta information about content data that is transmitted (203 in Figure 2, page 25, lines 10-19, Figure 6, page 31, line 23-page 32, line13). An identifier data storing means stores identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (203 in Figure 2, page 25, lines 10-19, Figure 6, page 31, line 23-page 32, line13).

A meta information schema storing means stores a meta information schema that defines the data structure of meta information about the content data according to the content data that is transmitted (202 in Figure 2, page 24, lines 10-23 and Figure 5, page 31, lines 7-23). An

inference rule storing means stores an inference rule defined by the data structure of meta

information about the content data that is transmitted (201 in Figure 2, page 25, lines 20-27).

A transmitting means transmits the meta information, the inference rule, and the content

data through a transmission path when the inference rule is not stored in a receiving apparatus,

and transmits only the meta information and the content data when the inference rule is stored in

the receiving apparatus (208 in Figure 2, page 26, line 23-page 27, line 10 and page 30, lines 1-

13).

A communication controlling means communicates with a receiving apparatus (210 in

Figure 2, page 27, lines 10-15). A changing means changes the inference rule that has been

stored in the inference rule storing means corresponding to content data that has been received

through the communication controlling means (212 in Figure 19, page 42, lines 20-25). The

meta information schema includes the identifier data and attribute names of the content (Figure 5,

page 31, lines 7-23). The meta information includes the identifier data, the attribute names and

description data corresponding to each attribute name of the content (Figure 6, page 31, line 23-

page 32, line 13).

The inference rule defines a rule for which an attribute value is newly obtained from a

relation between segments (page 32, lines 21-25). The communication controlling means

periodically receives use history information of meta information from the receiving apparatus

(page 46, lines 1-5). The changing means deletes, from the meta information schema, attributes

whose applied frequencies are low as indicated by the use history information (page 46, lines 15-

20).

Independent Claim 6

Independent claim 6 is directed to a receiving apparatus for receiving data for providing digital content (Figure 3 and Figure 20). A receiving means receives at least meta information and content data through a transmission path when an inference rule is not stored in the receiving apparatus, and receives only the meta information and the content data when the inference rule is stored in the receiving apparatus (301 in Figure 3, page 28, lines 3-8 and page 30, lines 1-3).

The receiving means receives identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data (403 and 404 in Figure 4, page 30, lines 21-27). A meta information schema storing means stores a meta information schema (307 in Figure 3, page 28, lines 10-15). A profile operating means operates a selection criterion for selecting meta information corresponding to the meta information schema (311 in Figure 3, page 29, lines 15-19). A user profile storing means stores a user profile generated by the profile operating means (312 in Figure 3, page 29, lines 18-19).

A meta information filtering means selects and receives meta information corresponding to the user profile (303 in Figure 3, page 29, lines 1-5). A meta information storing means stores meta information that has been selected and received (306 in Figure 3, page 29, lines 5-8). A meta information operating means searches and/or browses meta information (310 in Figure 3, page 29, lines 10-15). An inference rule storing means stores the inference rule defined by the data structure of meta information (304 in Figure 3, page 28, lines 9-10).

The inference rule defines a rule for which an attribute value is newly obtained from a relation between segments (page 32, lines 20-25). A data storing means receives and stores data of contents represented by the meta information that has been selected (305 in Figure 3, page 29, lines 25-27). A data operating portion operates data that has been stored in the data storing

means (309 in Figure 3, lines 1-3). The meta information schema includes the identifier data and

attribute names of the content (Figure 5, page 31, lines 7-23).

        The meta information includes the identifier data, the attribute names and description

data corresponding to each attribute name of the content (Figure 6, page 31, line 23-page 32, line

13). When the inference rule is applied, an applied frequency counter is incremented (page 36,

line 26-page 37, line 10). The applied frequency counter is periodically transmitted as use

history information to a transmitting apparatus (page 46, lines 1-5).

        <u>Independent Claim 7</u>

        Independent claim 7 is directed to a receiving apparatus for receiving data for providing

digital content data (Figure 3 and Figure 20). A receiving means receives at least meta

information and the content data through a transmission path and receiving identifier data

associated with a particular portion of the content data that is adapted to distinguish a segment of

content data when an inference rule is not stored in the receiving apparatus and receives only the

meta information, the identifier data and the content data when the inference rule is stored in the

receiving apparatus (301 in Figure 3, page 28, lines 3-8 and page 30, lines 1-3).

        A meta information schema storing means stores a meta information schema that defines

the data structure of meta information (307 in Figure 3, page 28, lines 10-15). A profile

operating means operates a selection criterion for selecting meta information corresponding to

the meta information schema (311 in Figure 3, page 29, lines 15-19). A user profile storing

means stores a user profile generated by the profile operating means (312 in Figure 3, page 29,

lines 18-19). A meta information filtering means selects and receives meta information

corresponding to the user profile (303 in Figure 3, page 29, lines 1-5).

A meta information storing means stores meta information that has been selected and received (306 in Figure 3, page 29, lines 5-8). A meta information operating means searches and/or browses meta information (310 in Figure 3, page 29, lines 10-15). An inference rule storing means stores the inference rule about the data structure of meta information (304 in Figure 3, page 28, lines 9-10). The inference rule defines a rule for which an attribute value is newly obtained from a relation between segments (page 32, lines 20-25).

A changing means changes the structure of the meta information schema that has been stored in the meta information schema storing means and the meta information that has been stored in the meta information storing means corresponding to the user profile that has been stored in the user profile storing means and to the inference rule that has been stored in the inference rule storing means (308 in Figure 3, page 28, lines 14-15). A data storing means receives and stores data of contents represented by the selected meta information (305 in Figure 3, page 29, lines 25-27). A data operating portion operates data that has been stored in the data storing means (309 in Figure 3, lines 1-3).

The meta information schema includes the identifier data and attribute names of the content (Figure 5, page 31, lines 7-23). The meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content (Figure 6, page 31, line 23-page 32, line 13). When the inference rule is applied, an applied frequency counter is incremented (page 36, line 26-page 37, line 10). The applied frequency counter is periodically transmitted as use history information to a transmitting apparatus (page 46, lines 1-5).

Independent Claim 10

Independent claim 10 is directed to a transmitting and receiving apparatus having a transmitting apparatus for providing digital content and a receiving apparatus for receiving digital content (Figure 1). The transmitting apparatus includes meta information storing means that stores meta information about content data that is transmitted (203 in Figure 2, page 25, lines 10-19, Figure 6, page 31, line 23-page 32, line13), meta information schema storing means that stores a meta information schema that defines the data structure of meta information about content data according to the content data that is transmitted (202 in Figure 2, page 24, lines 10-23 and Figure 5, page 31, lines 7-23), inference rule storing means that stores an inference rule defined by the data structure of meta information about content data that is transmitted (201 in Figure 2, page 25, lines 20-27), and transmitting means that transmits the meta information, the meta information schema, the inference rule, and content data through a transmission path when the inference rule and the meta information schema are not stored in a receiving apparatus and transmits only the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus (208 in Figure 2, page 26, line 23-page 27, line 10 and page 30, lines 1-13).

Use history information of meta information is periodically received from the receiving apparatus (page 46, lines 1-5). Attributes, whose applied frequencies are low as indicated by the use history information are deleted from the meta information schema (page 46, lines 15-20).

The receiving apparatus comprises: receiving means that receives the meta information, the meta information schema, the inference rule, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data, and content data through a transmission path when the inference rule and the meta information schema are

not stored in the receiving apparatus and receives only the meta information, the identifier data and the content data when the inference rule and the meta information schema are stored in the receiving apparatus (301 in Figure 3, page 28, lines 3-8 and page 30, lines 1-3).

Meta information schema storing means store the received meta information schema (307 in Figure 3, page 28, lines 10-15). Profile operating means operate a selection criterion for selecting meta information corresponding to the meta information schema (311 in Figure 3, page 29, lines 15-19). User profile storing means stores a user profile generated by the profile operating means (312 in Figure 3, page 29, lines 18-19) and meta information filtering means selects and receives meta information corresponding to the user profile (303 in Figure 3, page 29, lines 1-5).

Meta information storing means stores the meta information that has been selected and received (306 in Figure 3, page 29, lines 5-8) and meta information operating means that searches and/or browses meta information (310 in Figure 3, page 29, lines 10-15). Inference rule storing means store the inference rule that has been received (304 in Figure 3, page 28, lines 9-10) and data storing means receive and store data of content that is represented by the selected meta information (305 in Figure 3, page 29, lines 25-27). A data operating portion operates data that has been stored in the data storing means (309 in Figure 3, lines 1-3).

The meta information schema includes the identifier data and attribute names of the content (Figure 5, page 31, lines 7-23). The meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content (Figure 6, page 31, line 23-page 32, line 13). The inference rule defines a rule for which an attribute value is newly obtained from a relation between segments (page 32, lines 20-25). When the inference rule is applied, an applied frequency counter is incremented (page 36, line 26-page 37,

line 10). The applied frequency counter is periodically transmitted as the use history information

to the transmitting apparatus (page 46, lines 1-5).

Independent Claim 11

Independent claim 11 is directed to a transmitting and receiving apparatus having a

transmitting apparatus for providing digital content and a receiving apparatus for receiving

digital content (Figure 1).

The transmitting apparatus comprises: meta information storing means that stores meta

information about content data that is transmitted (203 in Figure 2, page 25, lines 10-19, Figure

6, page 31, line 23-page 32, line13), meta information schema storing means that stores a meta

information schema that defines the data structure of meta information about content data

according to the content data that is transmitted (202 in Figure 2, page 24, lines 10-23 and Figure

5, page 31, lines 7-23), transmitting means that transmits the meta information, the meta

information schema, and content data through a transmission path when an inference rule and the

meta information schema are not stored in the receiving apparatus, and transmits only the meta

information and the content data when the inference rule and the meta information schema are

stored in the receiving apparatus (208 in Figure 2, page 26, line 23-page 27, line 10 and page 30,

lines 1-13). Communication controlling means communicate with the receiving apparatus (210

in Figure 2, page 27, lines 10-15), and changing means change the structure of the meta

information schema that has been stored in the meta information storing means and the meta

information that has been stored in the meta information storing means corresponding to content

data that has been received through the communication controlling means (212 in Figure 19,

page 42, lines 20-25).

The communication controlling means periodically receives use history information of meta information from the receiving apparatus (page 46, lines 1-5). The changing means deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information (page 46, lines 15-20).

The receiving apparatus comprises: receiving means that receives the meta information, the meta information schema, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data, and content data through a transmission path (301 in Figure 3, page 28, lines 3-8 and page 30, lines 1-3), meta information schema storing means that stores the meta information schema that has been received (307 in Figure 3, page 28, lines 10-15), profile operating means that operates a selection criterion for selecting meta information corresponding to the meta information schema (311 in Figure 3, page 29, lines 15-19), user profile storing means that stores a user profile generated by the profile operating means (312 in Figure 3, page 29, lines 18-19), meta information filtering means that selects and receives meta information corresponding to the user profile (303 in Figure 3, page 29, lines 1-5), meta information storing means that stores meta information that has been selected and received (306 in Figure 3, page 29, lines 5-8), meta information operating means that searches and/or browses meta information (310 in Figure 3, page 29, lines 10-15). Data storing means receive and store data of content represented by the meta information that has been selected (305 in Figure 3, page 29, lines 25-27). A data operating portion operates data that has been stored in the data storing means (309 in Figure 3, lines 1-3), and communication controlling means that transmits data to the transmitting apparatus (302 in Figure 3, page 30, lines 1-5).

The meta information schema includes the identifier data and attribute names of the content (Figure 5, page 31, lines 7-23). The meta information includes the identifier data, the

attribute names and description data corresponding to each attribute name of the content (Figure

6, page 31, line 23-page 32, line 13). The inference rule defines a rule for which an attribute

value is newly obtained from a relation between segments (page 32, lines 20-25). When the

inference rule is applied, an applied frequency counter is incremented (page 36, line 26-page 37,

line 10). The applied frequency counter is periodically transmitted as the use history information

to the transmitting apparatus (page 46, lines 1-5).

Independent Claim 12

Independent claim 12 is directed to a transmitting and receiving apparatus having a

transmitting apparatus for providing digital content and a receiving apparatus for receiving

digital content (Figure 1).

The transmitting apparatus comprises: meta information storing means that stores meta

information about content data that is transmitted (203 in Figure 2, page 25, lines 10-19, Figure

6, page 31, line 23-page 32, line13), meta information schema storing means that stores a meta

information schema that defines the data structure of meta information about content data

according to the content data that is transmitted (202 in Figure 2, page 24, lines 10-23 and Figure

5, page 31, lines 7-23), inference rule storing means that stores an inference rule defined by the

data structure of meta information about content data that is transmitted (201 in Figure 2, page

25, lines 20-27), transmitting means that transmits the meta information, the meta information

schema, and content data through a transmission path when an inference rule and the meta

information schema are not stored in the receiving apparatus, and transmits only the meta

information and the content data when the inference rule and the meta information schema are

stored in the receiving apparatus (208 in Figure 2, page 26, line 23-page 27, line 10 and page 30, lines 1-13).

A communication controlling means communicates with the receiving apparatus (210 in Figure 2, page 27, lines 10-15), and changing means changes the structure of the meta information schema that has been stored in the meta information storing means and the meta information that has been stored in the meta information storing means corresponding to content data that has been received through the communication controlling means (212 in Figure 19, page 42, lines 20-25).

The communication controlling means periodically receives use history information of meta information from the receiving apparatus (page 46, lines 1-5). The changing means deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information (page 46, lines 15-20).

The receiving apparatus comprises: receiving means that receives the meta information, the meta information schema, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data, and content data through a transmission path (301 in Figure 3, page 28, lines 3-8 and page 30, lines 1-3), meta information schema storing means that stores the meta information schema that has been received (307 in Figure 3, page 28, lines 10-15), profile operating means that operates a selection criterion for selecting meta information corresponding to the meta information schema (311 in Figure 3, page 29, lines 15-19), user profile storing means that stores a user profile generated by the profile operating means (312 in Figure 3, page 29, lines 18-19), meta information filtering means that selects and receives meta information corresponding to the user profile (303 in Figure 3, page 29,

lines 1-5), meta information storing means that stores meta information that has been selected and received (306 in Figure 3, page 29, lines 5-8).

A meta information operating means searches and/or browses meta information (310 in Figure 3, page 29, lines 10-15), an inference rule storing means stores the inference rule that has been received (304 in Figure 3, page 28, lines 9-10), data storing means that receives and stores data of content represented by the meta information that has been selected (305 in Figure 3, page 29, lines 25-27), a data operating portion that operates data that has been stored in the data storing means (309 in Figure 3, lines 1-3), and communication controlling means that transmits content data to the transmitting apparatus (302 in Figure 3, page 30, lines 1-5).

The meta information schema includes the identifier data and attribute names of the content (Figure 5, page 31, lines 7-23). The meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content (Figure 6, page 31, line 23-page 32, line 13). The inference rule defines a rule for which an attribute value is newly obtained from a relation between segments (page 32, lines 20-25). When the inference rule is applied, an applied frequency counter is incremented (page 36, line 26-page 37, line 10). The applied frequency counter is periodically transmitted as the use history information to the transmitting apparatus (page 46, lines 1-5).

Independent Claim 13

Independent claim 13 is directed to a transmitting and receiving apparatus having a transmitting apparatus for providing digital content and a receiving apparatus for receiving digital content (Figure 1).

The transmitting apparatus comprises: meta information storing means that stores meta information about content data that is transmitted (203 in Figure 2, page 25, lines 10-19, Figure 6, page 31, line 23-page 32, line13), meta information schema storing means that stores a meta information schema that defines the data structure of meta information about content data according to the content data that is transmitted (202 in Figure 2, page 24, lines 10-23 and Figure 5, page 31, lines 7-23), inference rule storing means that stores an inference rule defined by the data structure of meta information about content data that is transmitted (201 in Figure 2, page 25, lines 20-27). Transmitting means transmits the meta information, the meta information schema, and content data through a transmission path when an inference rule and the meta information schema are not stored in the receiving apparatus, and transmits only the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus (208 in Figure 2, page 26, line 23-page 27, line 10 and page 30, lines 1-13). Use history information of meta information is periodically received from the receiving apparatus (page 46, lines 1-5).

Attributes, whose applied frequencies are low as indicated by the use history information are deleted from the meta information schema (page 46, lines 15-20).

The receiving apparatus comprises: receiving means that receives the meta information, the meta information schema, the inference rule, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data and content data through a transmission path (301 in Figure 3, page 28, lines 3-8 and page 30, lines 1-3), meta information schema storing means that stores the meta information schema that has been received (307 in Figure 3, page 28, lines 10-15), profile operating means that operates a selection criterion for selecting meta information corresponding to the meta information schema (311 in

Figure 3, page 29, lines 15-19). User profile storing means stores a user profile generated by the profile operating means (312 in Figure 3, page 29, lines 18-19), meta information filtering means selects and receives meta information corresponding to the user profile (303 in Figure 3, page 29, lines 1-5), meta information storing means that stores the meta information that has been selected and received (306 in Figure 3, page 29, lines 5-8), meta information operating means that searches and/or browses meta information (310 in Figure 3, page 29, lines 10-15).

Inference rule storing means stores an inference rule (304 in Figure 3, page 28, lines 9-10), changing means that changes the structure of the meta information schema that has been stored in the meta information schema storing means and the meta information that has been stored in the meta information storing means corresponding to the user profile that has been stored in the user profile storing means and to the inference rule that has been stored in the inference rule storing means (308 in Figure 3, page 28, lines 14-15). Data storing means receives and stores data of contents represented by the meta information that has been selected (305 in Figure 3, page 29, lines 25-27), and a data operating portion that operates data stored in the data storing means (309 in Figure 3, lines 1-3).

The meta information schema includes the identifier data and attribute names of the content (Figure 5, page 31, lines 7-23). The meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content (Figure 6, page 31, line 23-page 32, line 13). The inference rule defines a rule for which an attribute value is newly obtained from a relation between segments (page 32, lines 20-25). When the inference rule is applied, an applied frequency counter is incremented (page 36, line 26-page 37, line 10). The applied frequency counter is periodically transmitted as the use history information to the transmitting apparatus (page 46, lines 1-5).

Independent Claim 14

Independent claim 14 is directed to a transmitting method for providing digital content. The method transmits a meta information schema that defines the data structure of the meta information, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data and content data through a transmission path when an inference rule and the meta information schema are not stored in a receiving apparatus (page 26, line 23-page 27, line 10). The method also includes transmitting only the identifier data and the content data when the inference rule and the meta information schema are stored in the receiving apparatus (page 30, lines 1-13). Periodically use history information of meta information is received from the receiving apparatus (page 46, lines 1-5). The method also deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information (page 46, lines 15-20).

The method also includes changing the structure of the meta information schema and the meta information corresponding to data that has been received from a receiving apparatus and transmitting the changed data (212 in Figure 19, page 42, lines 20-25).

The meta information schema includes the identifier data and attribute names of the content (Figure 5, page 31, lines 7-23). The inference rule defines a rule for which an attribute value is newly obtained from a relation between segments (page 32, lines 21-25).

The meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content (Figure 6, page 31, line 23-page 32, line 13).

Independent Claim 15

Independent claim 15 is directed to a transmitting method for providing digital content. The method transmits a meta information schema that defines the data structure of the meta information, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data and content data through a transmission path when an inference rule and the meta information schema are not stored in a receiving apparatus (page 26, line 23-page 27, line 10). The method also transmits only the identifier data and the content data when the inference rule and the meta information schema are stored in the receiving apparatus (page 30, lines 1-13). Use history information of meta information is periodically received from the receiving apparatus (page 46, lines 1-5).

The method also deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information (page 46, lines 15-20). The structure of the meta information schema is changed and the meta information corresponding to data that has been received from a receiving apparatus is changed and transmitting the changed data (212 in Figure 19, page 42, lines 20-25). The inference rule defines a rule for which an attribute value is newly obtained from a relation between segments (page 32, lines 21-25).

The meta information schema includes the identifier data and attribute names of the content (Figure 5, page 31, lines 7-23). The meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content (Figure 6, page 31, line 23-page 32, line 13).

Independent Claim 17

Independent claim 17 is directed to a receiving method for receiving data for providing digital content. The method stores a meta information schema that defines the data structure of meta information (307 in Figure 3, page 28, lines 10-15). Identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data is also stored (307 in Figure 3, page 28, lines 10-15). Furthermore, the method stores at least meta information that has been selected and received when an inference rule and meta information schema are not stored in the receiving apparatus (page 28, lines 9-15), and stores only the meta information and the content data when the inference rule is stored in the receiving apparatus (page 30, lines 1-13).

The method also searches and/or browses meta information (310 in Figure 3, page 29, lines 10-15) and changes the structure of the meta information schema and the meta information that has been stored corresponding to a user profile and an inference rule (308 in Figure 3, page 28, lines 14-15).

The method also increments an applied frequency counter when the inference rule is applied (page 36, line 26-page 37, line 10) and periodically transmits the applied frequency counter as the use history information to a transmitting apparatus (page 46, lines 1-5).

The meta information schema includes the identifier data and attribute names of the content (Figure 5, page 31, lines 7-23).

The inference rule defines a rule for which an attribute value is newly obtained from a relation between segments (page 32, lines 20-25). The meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content (Figure 6, page 31, line 23-page 32, line 13).

Independent Claim 18

Independent claim 18 is directed to a transmitting and receiving method for providing digital content and receiving digital content. The method transmits a meta information schema that defines the data structure of the meta information, and identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data and content data through a transmission path when an inference rule and the meta information schema are not stored in a receiving apparatus (page 26, line 23-page 27, line 10).

The method also transmits only the identifier data and the content data when the inference rule and the meta information schema are stored in the receiving apparatus (page 30, lines 1-13). The method periodically receives use history information of meta information from the receiving apparatus (page 46, lines 1-5) and deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information (page 46, lines 15-20).

The method also changes the structure of the meta information schema and the meta information corresponding to data that has been received from a receiving apparatus and transmitting the changed data (212 in Figure 19, page 42, lines 20-25). Furthermore, the method stores a meta information schema that defines the data structure of the meta information that has been received on a receiving side (307 in Figure 3, page 28, lines 10-15) and stores the meta information that has been selected and received (306 in Figure 3, page 29, lines 5-8).

The method also searches and/or browses meta information (310 in Figure 3, page 29, lines 10-15) and increments an applied frequency counter when the inference rule is applied (page 36, line 26-page 37, line 10). Periodically the applied frequency counter is transmitted as

the use history information to a transmitting apparatus (page 46, lines 1-5). The meta

information schema includes the identifier data and attribute names of the content (Figure 5,

page 31, lines 7-23).

The inference rule defines a rule for which an attribute value is newly obtained from a

relation between segments (page 32, lines 20-25). The meta information includes the identifier

data, the attribute names and description data corresponding to each attribute name of the content

(Figure 6, page 31, line 23-page 32, line 13).

Independent Claim 19

Independent claim 19 is directed to a transmitting and receiving method for providing

digital content and receiving digital content.

The method transmits a meta information schema that defines the data structure of the

meta information, identifier data associated with a particular portion of the content data that is

adapted to distinguish a segment of content data and content data through a transmission path

when an inference rule and the meta information schema are not stored in a receiving apparatus

(page 26, line 23-page 27, line 10).

The method transmits only the identifier data and the content data when the inference rule

and the meta information schema are stored in the receiving apparatus (page 30, lines 1-13) and

periodically receives use history information of meta information from the receiving apparatus

(page 46, lines 1-5).

The method deletes, from the meta information schema, attributes whose applied

frequencies are low as indicated by the use history information (page 46, lines 15-20) and

changes the structure of the meta information schema and the meta information corresponding to

data that has been received from a receiving apparatus and transmitting the changed data (212 in

Figure 19, page 42, lines 20-25). The method stores a meta information schema that defines the

data structure of the meta information that has been received on a receiving side (307 in Figure 3,

page 28, lines 10-15) and stores the meta information that has been selected and received (306 in

Figure 3, page 29, lines 5-8).

     The method also searches and/or browses meta information (310 in Figure 3, page 29,

lines 10-15) and increments an applied frequency counter when the inference rule is applied

(page 36, line 26-page 37, line 10).

     The method also periodically transmits the applied frequency counter as the use history

information to a transmitting apparatus (page 46, lines 1-5). The meta information schema

includes the identifier data and attribute names of the content (Figure 5, page 31, lines 7-23).

The inference rule defines a rule for which an attribute value is newly obtained from a relation

between segments (page 32, lines 20-25).

     The meta information includes the identifier data, the attribute names and description

data corresponding to each attribute name of the content (Figure 6, page 31, line 23-page 32, line

13).

Independent Claim 20

     Independent claim 20 is directed to a transmitting and receiving method for providing

digital content and receiving digital content. The method transmits a meta information schema

that defines the data structure of the meta information, identifier data associated with a particular

portion of the content data that is adapted to distinguish a segment of content data and content

data through a transmission path when an inference rule and the meta information schema are not stored in a receiving apparatus (page 26, line 23-page 27, line 10).

The method transmits only the identifier data and the content data when the inference rule and the meta information schema are stored in the receiving apparatus (page 30, lines 1-13). The method also periodically receives use history information of meta information from the receiving apparatus (page 46, lines 1-5) and deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information (page 46, lines 15-20). The method stores a meta information schema that defines the data structure of the meta information that has been received on a receiving side (307 in Figure 3, page 28, lines 10-15) and stores the meta information that has been selected and received (306 in Figure 3, page 29, lines 5-8).

The method changes the structure of the meta information schema and the meta information that has been stored corresponding to a user profile and the inference rule (page 28, lines 14-15). The method also increments an applied frequency counter when the inference rule is applied (page 36, line 26-page 37, line 10) and periodically transmits the applied frequency counter as the use history information to a transmitting apparatus (page 46, lines 1-5).

The meta information schema includes the identifier data and attribute names of the content (Figure 5, page 31, lines 7-23). The inference rule defines a rule for which an attribute value is newly obtained from a relation between segments (page 32, lines 20-25). The meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content (Figure 6, page 31, line 23-page 32, line 13).

vi   GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-24 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over

Maissel in view of Hendricks and further in view of Cobbley.

vii   ARGUMENTS

I.   INDEPENDENT CLAIMS

Independent claim 1, recites, *inter alia*:

"**meta information schema storing means for storing a meta
information schema that defines the data structure of meta
information about the content data according to the content
data that is transmitted,**

…**wherein the meta information schema is periodically
updated to effectively add, delete, and transmit the meta
information and to improve a searching efficiency of the meta
information;**

…**wherein attributes, whose applied frequencies are low as
indicated by the use history information are deleted from said
meta information schema**." (emphasis added)

According to this invention, a meta information schema that defines a structure of

meta information is transmitted, updated, and stored for efficiently transmitting meta information.

When meta information such as Electronic Program Guide (EPG) is added to contents data, it is

necessary to add and transmit meta information effectively since an increase of transmission data

is created due to addition of meta information. (see page 2, lines 19-15of the Specification).

Meta information and meta information schema according to this invention are

disclosed in Figures 5 and 6 and pages 31, line 7-page 32, line 20. As an example, for a baseball

game, the meta information includes actual information of a game such as "1998/10/10" as date

and time, "Kyojin" as a home team, and "Hanshin" as a visitor team. The meta information schema defines attributes not the actual meta information that are needed to be included such as date and team, home team, and visitor team. Indeed, the meta information schema does not include any actual information of a particular program. The meta information may have a larger amount of the data than the meta information schema. Therefore, transmitting meta information without selection may unnecessarily increase data amount. When a meta information schema is implemented, users or a service station may select interested attributes of meta information so that the increased amount due to addition of meta information is controlled.

The art used as a basis of rejection fails to render the claims unpatentable because the claims recite: 1.) a meta information schema that defines the data structure; 2.) meta information schema updating; and 3.) deletion of attributes with a low frequency. The art used as a basis of rejection fails to teach or suggest these features.

A.   The Claimed Meta Information Schema Defining The Data Structure Is Not Disclosed In The Maissel Reference

Claim 1 recites that meta information schema storing means for storing a meta information schema that defines the data structure of meta information about the content data according to the content data that is transmitted. This is not described or suggested in the art used as a basis of rejection.

The Office Action (see pages 2, 4, and 5) and the Advisory Action (see page 2) incorrectly interpret EPG of Maissel as a meta information schema. The Specification of this invention clearly points out that EPG is meta information not meta information schema (see page

2). Specific portions of the Advisory Action showing the misunderstandings are discussed as follows.

The Advisory Action relies on page 20, line 28-page 21, line 24, and Figure 9B of Maissel to reject <u>meta information schema storing means for storing a meta information schema that defines the data structure of meta information about the content data according to the content data that is transmitted</u>, as recited in claim 1. The Advisory Action interprets "defining the layout of the program guide" of Maissel as Appellants' claimed "a meta information schema". Appellants respectfully submit that EPG defines <u>the actual position or order</u> (layout) of the meta information. A specific layout of EPG, as described in Maissel, is the actual meta information of each channel and program in EPG. For example, in Maissel, a channel maybe listed as the first or the last item, which is a metal information of the channels or programs in an EPG. However, the EPG of Maissel does not allow a user to remove an attribute of "layout" or "order" from the EPG. Removing a program or reordering a channel <u>only changes the value of metal information of a program or channel and does not alter the attribute</u>.

Thus, claim 1 recites storing a meta information schema that defines the data structure of meta information about the content data according to the content data that is transmitted. This feature is not described or suggested in Maissel.

B.   The Claimed Meta Information Schema Updating Feature Is Not Disclosed In The Maissel Reference

The Advisory Action relies on page 16, line 17-page 17, line 16, page 24, lines 27-31, page 20, line 28-page 21, line 23, and Figure 9A of Maissel to reject <u>wherein the meta information schema is periodically updated to effectively add, delete, and transmit the meta</u>

information and to improve a searching efficiency of the meta information, as recited in claim 1.
The Advisory Action interprets "updated guide information" and identifying the order for
channels to appear" of Maissel as Appellants' claimed updating the meta information schema is
periodically. Again, Appellants respectfully submit that updating the program guide and
displaying channels in a different position is updating meta information of a program of a
channel in the EPG.

C.   The Claimed Deletion Of Attributes Feature Is Not Disclosed In The Maissel Reference

The Advisory Action relies on page 21, lines 1-5 of Maissel to reject wherein
attributes, whose applied frequencies are low as indicated by the use history information are
deleted from said meta information schema, as recited in claim 1. The Advisory Action
interprets "removing certain programs from the program guide" as Appellants' claimed deleting
attributes from a meta information schema. Appellants respectfully submit that removing a
program from a program guide is removing a meta information from a plurality of meta
information. Removing a program from program guide, as described in Maissel does not
disclose or teach deleting attributes from a meta information schema, as recited in claim 1.

D.   Responses to Examiner's Answer

The Examiner's Answer (see "(10) Response to Argument" at pages 63-66) relies
on Maissel to reject the above-identified features of claim 1. Specifically The Examiner's
Answer (see page 63, lines 10-11) states: "information defining the layout of the program guide

clearly qualifies as a schema". The Examiner's Answer further interprets the customization of

the layout of the program guide as the customization of a schema. Appellants respectfully

disagree. Appellants submit that the Examiner's Answer <u>incorrectly interprets "information</u>

<u>defining the layout of the program guide"</u>.

Appellants submit that <u>"layout" may be an attribute in a schema</u> that defines the

data structure of a program guide. However, <u>"information defining the layout of</u> the program

<u>guide" is the actual attribute value, which is clearly meta information</u>. For example, a reordering

of a program in the program guide inherently requires changing the "layout" value of the

program in the program guide. Such changing of the layout value is the changing of meta

information and is NOT the changing of the schema.

Therefore, Appellants submit that "information defining the layout of the program

guide" is meta information of a program and not a schema. Rejections based on "information

defining the layout of the program" in the Examiner's Answer are improper.

Therefore, Appellants submit that independent claim 1 is patentable and should be

allowed.

For reasons similar to those described above with regard to independent claim 1,

independent claims 2, 3, 6, 7, 10-15, and 17-20 are also believed to be patentable and should be

allowed.

Therefore, Appellants submit that independent claims 2, 3, 6, 7, 10-15, and 17-20

are patentable and should be allowed.

II.   DEPENDENT CLAIMS

The other claims in this application are each dependent from one of the independent claims discussed above, and are therefore patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.
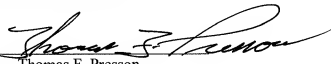
<div align="center">

CONCLUSION

</div>

For the reasons discussed above, claims 1-24 are patentable. It is, therefore, respectfully submitted that the Examiner erred in rejecting claims 1-24, and Appellants request a reversal of these rejections.

The Commissioner is hereby authorized to charge any additionally required fee, or to credit any overpayment in such fees, to Deposit Account No. 50-0320.

Respectfully submitted,

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By _____
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APPENDIX I

CLAIMS ON APPEAL

1.   (Previously Presented) A transmitting apparatus for providing digital content, comprising:

meta information storing means for storing meta information about content data that is transmitted;

identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data;

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about the content data according to the content data that is transmitted,

wherein the meta information schema is periodically updated to effectively add, delete, and transmit the meta information and to improve a searching efficiency of the meta information;

inference rule storing means for storing an inference rule defined by the data structure of meta information about the content data that is transmitted; and

transmitting means for transmitting the meta information, the meta information schema, the inference rule, and the content data through a transmission path when the inference rule and the meta information schema are not stored in a receiving apparatus, and transmitting only the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus,

wherein the meta information schema includes the identifier data and attribute names of the content,

wherein the meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content;

wherein use history information of meta information is periodically received from the receiving apparatus;

wherein attributes, whose applied frequencies are low as indicated by the use history information are deleted from said meta information schema;

wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments.

2.   (Previously Presented) A transmitting apparatus for providing digital content, comprising:

meta information storing means for storing meta information about content data that is transmitted;

identifier data storing means for storing identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data;

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about the content data according to the content data that is transmitted;

transmitting means for transmitting the meta information, the meta information schema, and the content data through a transmission path when an inference rule and the meta information schema are not stored in a receiving apparatus, and transmitting only the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus;

communication controlling means for communicating with a receiving apparatus; and

changing means for changing the structure of the meta information schema that has been stored in said meta information schema storing means and the meta information that has been stored in said meta information storing means corresponding to content data that has been received through said communication controlling means,

wherein the meta information schema includes the identifier data and attribute names of the content,

wherein the meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content;

wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments;

wherein said communication controlling means periodically receives use history information of meta information from the receiving apparatus; and

wherein said changing means deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information.

3.   (Previously Presented) A transmitting apparatus for providing digital content, comprising:

meta information storing means for storing meta information about content data that is transmitted;

identifier data storing means for storing identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data;

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about the content data according to the content data that is transmitted;

inference rule storing means for storing an inference rule defined by the data structure of meta information about the content data that is transmitted;

transmitting means for transmitting the meta information, the inference rule, and the content data through a transmission path when the inference rule is not stored in a receiving apparatus, and transmitting only the meta information and the content data when the inference rule is stored in the receiving apparatus;

communication controlling means for communicating with a receiving apparatus; and

changing means for changing the inference rule that has been stored in said inference rule storing means corresponding to content data that has been received through said communication controlling means,

wherein the meta information schema includes the identifier data and attribute names of the content,

wherein the meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content;

wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments;

wherein said communication controlling means periodically receives use history information of meta information from the receiving apparatus; and

wherein said changing means deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information.

                                                           00616229

4.   (Previously Presented) The transmitting apparatus as set forth in claim 1, further comprising:

converting means for converting the format of the meta information into a transmission format.

5.   (Previously Presented) The transmitting apparatus as set forth in claim 2, wherein content data that has been received through said communication controlling apparatus is data that represents a use history of meta information of the receiving apparatus.

6.   (Previously Presented) A receiving apparatus for receiving data for providing digital content, comprising:

receiving means for receiving at least meta information and content data through a transmission path when an inference rule is not stored in the receiving apparatus, and receiving only the meta information and the content data when the inference rule is stored in the receiving apparatus,

wherein the receiving means receives identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data;

meta information schema storing means for storing a meta information schema;

profile operating means for operating a selection criterion for selecting meta information corresponding to the meta information schema;

user profile storing means for storing a user profile generated by said profile operating means;

meta information filtering means for selecting and receiving meta information corresponding to the user profile;

meta information storing means for storing meta information that has been selected and received;

meta information operating means for searching and/or browsing meta information;

inference rule storing means for storing the inference rule defined by the data structure of meta information;

wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments;

data storing means for receiving and storing data of contents represented by the meta information that has been selected; and

a data operating portion for operating data that has been stored in said data storing means,

wherein the meta information schema includes the identifier data and attribute names of the content,

wherein the meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content;

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as use history information to a transmitting apparatus.

7. (Previously Presented) A receiving apparatus for receiving data for providing digital content data, comprising:

receiving means for receiving at least meta information and the content data through a transmission path and receiving identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data when an inference rule is not stored in the receiving apparatus, and receiving only the meta information, the identifier data and the content data when the inference rule is stored in the receiving apparatus;

meta information schema storing means for storing a meta information schema that defines the data structure of meta information;

profile operating means for operating a selection criterion for selecting meta information corresponding to the meta information schema;

user profile storing means for storing a user profile generated by said profile operating means;

meta information filtering means for selecting and receiving meta information corresponding to the user profile;

meta information storing means for storing meta information that has been selected and received;

meta information operating means for searching and/or browsing meta information;

inference rule storing means for storing the inference rule about the data structure of meta information;

wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments;

changing means for changing the structure of the meta information schema that has been stored in said meta information schema storing means and the meta information that has been stored in said meta information storing means corresponding to the user profile that has been stored in said user profile storing means and to the inference rule that has been stored in said inference rule storing means;

data storing means for receiving and storing data of contents represented by the selected meta information; and

a data operating portion for operating data that has been stored in said data storing means,

wherein the meta information schema includes the identifier data and attribute names of the content,

wherein the meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content;

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as use history information to a transmitting apparatus.

8.   (Original) The receiving apparatus as set forth in claim 7,

wherein said changing means changes the meta information schema that has been stored in said meta information schema storing means and the meta information that has been stored in said meta information storing means corresponding to a use history of meta information of a user.

9.   (Original) The receiving apparatus as set forth in claim 7,

wherein said changing means changes a meta information schema and received meta information corresponding to a user's setup and stores the changed meta information schema and the changed meta information to said meta information schema storing means and said meta information storing means, respectively.

10.   (Previously Presented) A transmitting and receiving apparatus having a transmitting apparatus for providing digital content and a receiving apparatus for receiving digital content,

wherein the transmitting apparatus comprises:

meta information storing means for storing meta information about content data that is transmitted;

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about content data according to the content data that is transmitted;

inference rule storing means for storing an inference rule defined by the data structure of meta information about content data that is transmitted; and

transmitting means for transmitting the meta information, the meta information schema, the inference rule, and content data through a transmission path when the inference rule and the meta information schema are not stored in a receiving apparatus, and transmitting only the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus,

wherein use history information of meta information is periodically received from the receiving apparatus;

wherein attributes, whose applied frequencies are low as indicated by the use history information are deleted from said meta information schema; and

wherein the receiving apparatus comprises:

receiving means for receiving the meta information, the meta information schema, the inference rule, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data, and content data through a transmission path when the inference rule and the meta information schema are not stored in the receiving apparatus, and receiving only the meta information, the identifier data and the content data when the inference rule and the meta information schema are stored in the receiving apparatus;

meta information schema storing means for storing the received meta information schema;

profile operating means for operating a selection criterion for selecting meta information corresponding to the meta information schema;

user profile storing means for storing a user profile generated by said profile operating means;

meta information filtering means for selecting and receiving meta information corresponding to the user profile;

meta information storing means for storing the meta information that has been selected and received;

meta information operating means for searching and/or browsing meta information;

inference rule storing means for storing the inference rule that has been received;

data storing means for receiving and storing data of content that is represented by the selected meta information; and

a data operating portion for operating data that has been stored in said data storing means;

wherein the meta information schema includes the identifier data and attribute names of the content,

wherein the meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content;

wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments;

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as the use history information to said transmitting apparatus.

11.   (Previously Presented) A transmitting and receiving apparatus having a transmitting apparatus for providing digital content and a receiving apparatus for receiving digital content,

wherein the transmitting apparatus comprises:

meta information storing means for storing meta information about content data that is transmitted;

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about content data according to the content data that is transmitted;

transmitting means for transmitting the meta information, the meta information schema, and content data through a transmission path when an inference rule and the meta

information schema are not stored in the receiving apparatus, and transmitting only the meta

information and the content data when the inference rule and the meta information schema are

stored in the receiving apparatus;

communication controlling means for communicating with the receiving

apparatus; and

changing means for changing the structure of the meta information schema that

has been stored in said meta information storing means and the meta information that has been

stored in said meta information storing means corresponding to content data that has been

received through said communication controlling means,

wherein said communication controlling means periodically receives use history

information of meta information from the receiving apparatus; and

wherein said changing means deletes, from the meta information schema,

attributes whose applied frequencies are low as indicated by the use history information; and

wherein the receiving apparatus comprises:

receiving means for receiving the meta information, the meta information schema,

identifier data associated with a particular portion of the content data that is adapted to

distinguish a segment of content data, and content data through a transmission path;

meta information schema storing means for storing the meta information schema

that has been received;

profile operating means for operating a selection criterion for selecting meta

information corresponding to the meta information schema;

user profile storing means for storing a user profile generated by said profile

operating means;

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meta information filtering means for selecting and receiving meta information corresponding to the user profile;

meta information storing means for storing meta information that has been selected and received;

meta information operating means for searching and/or browsing meta information;

data storing means for receiving and storing data of content represented by the meta information that has been selected;

a data operating portion for operating data that has been stored in said data storing means; and communication controlling means for transmitting data to the transmitting apparatus,

wherein the meta information schema includes the identifier data and attribute names of the content,

wherein the meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content;

wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments;

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as the use history information to said transmitting apparatus.

12.   (Previously Presented) A transmitting and receiving apparatus having a transmitting apparatus for providing digital content and a receiving apparatus for receiving digital content,

wherein the transmitting apparatus comprises:

meta information storing means for storing meta information about content data according to the content data that is transmitted;

meta information storing means for storing a meta information schema that defines the data structure of meta information about content data that is transmitted;

inference rule storing means for storing an inference rule defined by the data structure of meta information about content data that is transmitted;

transmitting means for transmitting the meta information, the meta information schema, the inference rule, and content data through a transmission path when the inference rule and the meta information schema are not stored in the receiving apparatus, and transmitting only the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus;

communication controlling means for communicating with the receiving apparatus; and

changing means for changing the inference rule that has been stored in said inference rule storing means corresponding to content data that has been received through said communication controlling means,

wherein said communication controlling means periodically receives use history information of meta information from the receiving apparatus; and

wherein said changing means deletes, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information; and

wherein the receiving apparatus comprises:

receiving means for receiving the meta information, the meta information schema, the inference rule, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data and content data through a transmission path;

meta information schema storing means for storing the meta information schema that has been received;

profile operating means for operating a selection criterion for selecting meta information corresponding to the meta information schema;

user profile storing means for storing a user profile generated by said profile operating means;

meta information filtering means for selecting and receiving meta information corresponding to the user profile;

meta information storing means for storing the meta information that has been selected and received;

meta information operating means for searching and/or browsing meta information;

inference rule storing means for storing the inference rule that has been received;

data storing means for receiving and storing data of content represented by the meta information that has been selected;

a data operating portion for operating data that has been stored in said data storing means; and

communication controlling means for transmitting content data to the transmitting apparatus,

wherein the meta information schema includes the identifier data and attribute names of the content,

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wherein the meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content;

wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments;

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as the use history information to said transmitting apparatus.

13.   (Previously Presented) A transmitting and receiving apparatus having a transmitting apparatus for providing digital content and a receiving apparatus for receiving digital content,

wherein the transmitting apparatus comprises:

meta information storing means for storing meta information about content data according to the content data that is transmitted;

meta information schema storing means for storing a meta information schema that defines the data structure of meta information about content data that is transmitted;

inference rule storing means for storing an inference rule about the data structure of meta information about content data that is transmitted; and

transmitting means for transmitting the meta information, the meta information schema, the inference rule, and content data through a transmission path when the inference rule and the meta information schema are not stored in the receiving apparatus, and transmitting only the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus,

wherein use history information of meta information is periodically received from the receiving apparatus;

wherein attributes, whose applied frequencies are low as indicated by the use history information are deleted from said meta information schema; and

wherein the receiving apparatus comprises:

receiving means for receiving the meta information, the meta information schema, the inference rule, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data and content data through a transmission path;

meta information schema storing means for storing the meta information schema that has been received;

profile operating means for operating a selection criterion for selecting meta information corresponding to the meta information schema;

user profile storing means for storing a user profile generated by said profile operating means;

meta information filtering means for selecting and receiving meta information corresponding to the user profile;

meta information storing means for storing the meta information that has been selected and received;

meta information operating means for searching and/or browsing meta information;

inference rule storing means for storing an inference rule;

changing means for changing the structure of the meta information schema that has been stored in said meta information schema storing means and the meta information that has been stored in said meta information storing means corresponding to the user profile that has

been stored in said user profile storing means and to the inference rule that has been stored in said inference rule storing means;

data storing means for receiving and storing data of contents represented by the meta information that has been selected; and

a data operating portion for operating data stored in said data storing means,

wherein the meta information schema includes the identifier data and attribute names of the content,

wherein the meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content;

wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments;

wherein when said inference rule is applied, an applied frequency counter is incremented; and

wherein said applied frequency counter is periodically transmitted as the use history information to said transmitting apparatus.

14.   (Previously Presented) A transmitting method for providing digital content, comprising the steps of:

when meta information about content data that is transmitted,

transmitting a meta information schema that defines the data structure of the meta information, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data and content data through a transmission path when an inference rule and the meta information schema are not stored in a receiving apparatus, and

transmitting only the identifier data and the content data when the inference rule and the meta

information schema are stored in the receiving apparatus,

periodically receiving use history information of meta information from the

receiving apparatus;

deleting, from the meta information schema, attributes whose applied frequencies

are low as indicated by the use history information; and

changing the structure of the meta information schema and the meta information

corresponding to data that has been received from a receiving apparatus and transmitting the

changed data,

wherein the meta information schema includes the identifier data and attribute

names of the content,

wherein the inference rule defines a rule for which an attribute value is newly

obtained from a relation between segments;

wherein the meta information includes the identifier data, the attribute names and

description data corresponding to each attribute name of the content.

15.   (Previously Presented) A transmitting method for providing digital

content, comprising the steps of:

when meta information about content data that is transmitted,

transmitting a meta information schema that defines the data structure of the meta

information, an inference rule about the data structure of the meta information, and content data

through a transmission path, including identifier data associated with a particular portion of the

content data that is adapted to distinguish a segment of content data when the meta information

schema and the inference rule are not stored in a receiving apparatus, and transmitting only the

meta information, the identifier data and the content data when the inference rule and the meta

information schema are stored in the receiving apparatus,

periodically receiving use history information of meta information from the

receiving apparatus;

deleting, from the meta information schema, attributes whose applied frequencies

are low as indicated by the use history information; and

changing the inference rule corresponding to content data that has been received

from a receiving apparatus and transmitting the changed data,

wherein the inference rule defines a rule for which an attribute value is newly

obtained from a relation between segments;

wherein the meta information schema includes the identifier data and attribute

names of the content,

wherein the meta information includes the identifier data, the attribute names and

description data corresponding to each attribute name of the content.

16.   (Previously Presented) The transmitting method as set forth in claim 14,

further comprising the step of:

receiving a meta information use history from the receiving apparatus and

transmitting a meta information schema, meta information, and an inference rule that have been

changed so that they have respective data structures corresponding to the meta information use

history.

17.   (Previously Presented) A receiving method for receiving data for

providing digital content, comprising the steps of:

storing a meta information schema that defines the data structure of meta information;

storing identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data;

storing at least meta information that has been selected and received when an inference rule and meta information schema are not stored in the receiving apparatus, and storing only the meta information and the content data when the inference rule is stored in the receiving apparatus;

searching and/or browsing meta information;

changing the structure of the meta information schema and the meta information that has been stored corresponding to a user profile and an inference rule;

incrementing an applied frequency counter when said inference rule is applied; and

periodically transmitting said applied frequency counter as the use history information to a transmitting apparatus;

wherein the meta information schema includes the identifier data and attribute names of the content;

wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments;

wherein the meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content.

18. (Previously Presented) A transmitting and receiving method for providing digital content and receiving digital content, comprising the steps of:

transmitting meta information about content data that is transmitted, a meta information schema that defines the data structure of the meta information, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data, and content data through a transmission path when the meta information schema and the inference rule are not stored in a receiving apparatus, and transmitting only the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus;

periodically receiving use history information of meta information from the receiving apparatus from the receiving apparatus;

deleting, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information;

changing the structure of the meta information schema that is transmitted and the meta information corresponding to content data that has been received from a receiving apparatus;

storing a meta information schema that defines the data structure of the meta information that has been received on a receiving side;

storing the meta information that has been selected and received;

searching and/or browsing the meta information,

incrementing an applied frequency counter when said inference rule is applied; and

periodically transmitting said applied frequency counter as the use history information to a transmitting apparatus;

wherein the meta information schema includes the identifier data and attribute names of the content,

wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments;

wherein the meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content.

19.   (Previously Presented) A transmitting and receiving method for providing digital content and receiving digital content, comprising the steps of:

transmitting meta information about content data that is transmitted, a meta information schema that defines the data structure of the meta information, an inference rule, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data, and content data through a transmission path when the meta information schema and the inference rule are not stored in a receiving apparatus, and transmitting only the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus;

periodically receiving use history information of meta information from the receiving apparatus from the receiving apparatus;

deleting, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information;

changing the inference rule that is transmitted corresponding to data that has been received from a receiving apparatus;

storing a meta information schema that defines the data structure of the meta information that has been received on a receiving side;

storing the meta information that has been selected and received;

searching and/or browsing the meta information,

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incrementing an applied frequency counter when said inference rule is applied;

and

periodically transmitting said applied frequency counter as the use history information to a transmitting apparatus;

wherein the meta information schema includes the identifier data and attribute names of the content,

wherein the inference rule defines a rule for which an attribute value is newly obtained from a relation between segments;

wherein the meta information includes the identifier data, the attribute names and description data corresponding to each attribute name of the content.

20.   (Previously Presented) A transmitting and receiving method for providing digital content and receiving digital content, comprising the steps of:

transmitting meta information about content data , a meta information schema that defines the data structure of the meta information, an inference rule about the data structure of the meta information, identifier data associated with a particular portion of the content data that is adapted to distinguish a segment of content data, and content data through a transmission path when the inference rule and the meta information schema are not stored in a receiving apparatus, and transmitting only the meta information and the content data when the inference rule and the meta information schema are stored in the receiving apparatus;

periodically receiving use history information of meta information from the receiving apparatus;

deleting, from the meta information schema, attributes whose applied frequencies are low as indicated by the use history information;

storing the meta information schema that defines the data structure of the meta

information that has been received on a receiving side;

storing the meta information that has been selected and received;

changing the structure of the meta information schema and the meta information

that has been stored corresponding to a user profile and the inference rule,

incrementing an applied frequency counter when said inference rule is applied;

and

periodically transmitting said applied frequency counter as the use history

information to a transmitting apparatus

wherein the meta information schema includes the identifier data and attribute

names of the content,

wherein the inference rule defines a rule for which an attribute value is newly

obtained from a relation between segments;

wherein the meta information includes the identifier data, the attribute names and

description data corresponding to each attribute name of the content.

21.   (Previously Presented) The transmitting apparatus as set forth in claim 2,

further comprising:

converting means for converting the format of the meta information into a

transmission format.

22.   (Previously Presented) The transmitting apparatus as set forth in claim 3,

further comprising:

converting means for converting the format of the meta information into a

transmission format.

23.   (Previously Presented) The transmitting apparatus as set forth in claim 3,

wherein data that has been received through said communication controlling

apparatus is data that represents a use history of meta information of the receiving apparatus.

24.   (Previously Presented) The transmitting method as set forth in claim 15,

further comprising the step of:

receiving a meta information use history from the receiving apparatus and transmitting a

meta information schema, meta information, and an inference rule that have been changed so that

they have respective data structures corresponding to the meta information use history.

APPENDIX II

EVIDENCE

None

APPENDIX III

RELATED PROCEEDINGS

None

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